AIR QUALITY PERMIT

Issued To: Bitter Creek Pipelines, LLC
Visborg 25 Battery
Environmental Staff
WBI Holdings, Inc.
P.O. Box 131
Glendive, MT 59330

Permit: #3302-02
Application Complete: 04/24/06
Preliminary Decision Issued: 06/02/06
Department Decision Issued: 06/20/06
Permit Final: 07/06/06
AFS: # 003-0023

An air quality permit, with conditions, is hereby granted to Bitter Creek Pipelines, LLC - Visborg 25 Battery natural gas compressor station (BCPL), pursuant to Sections 75-2-204 and 211 of the Montana Code Annotated (MCA), as amended, and Administrative Rules of Montana (ARM) 17.8.740, *et seq*., as amended, for the following:

Section I: Permitted Facilities

A. Permitted Equipment

BCPL operates the Visborg 25 Battery natural gas compressor station (consisting of up to five natural gas compressor engines utilizing "lean-burn" technology with catalytic oxidation units and a combined total maximum rated design capacity not to exceed 2,460 horsepower (hp)) at the SW¼ of Section 25, Township 9 South, Range 40 East, Big Horn County, Montana. A complete list of the permitted equipment is contained in Section I.A of the permit analysis.

B. Current Permit Action

On April 24, 2006, the Montana Department of Environmental Quality (Department) received a request from WBI Holdings, Inc. on behalf of BCPL to reduce the number of permitted engines from six to five and to increase the total hp from 2,400 hp to 2,460 hp. BCPL's request would add an 860-hp lean-burn engine (engine #5) to the existing four 400-hp lean-burn engines (engines #1, #2, #3, and #4).

Section II. Conditions and Limitations

A. Emission Limitations

1. BCPL shall not operate more than five "lean-burn" natural gas compressor engines at any given time. The maximum rated design capacity of the engines shall not exceed 2,460 hp total (ARM 17.8.749).

2. Emissions from the 400-hp lean-burn engines shall be controlled with a catalytic oxidation unit. The pound per hour (lb/hr) limits for each of the engines shall be determined using the following equation and pollutant specific grams per brake horsepower-hour (g/bhp-hr) emission factors (ARM 17.8.752):

Equation

Emission Limit (lb/hr) = Emission Factor (g/bhp-hr) * maximum rated design capacity of engine (hp) * 0.002205 lb/g.

Emission Factors

Oxides of Nitrogen (NO_x[1]):	1.0 g/hp-hr
Carbon Monoxide (CO):	0.5 g/hp-hr
Volatile Organic Compounds (VOC):	0.5 g/hp-hr.

3. Emissions from the 860-hp lean-burn engine shall be controlled with a catalytic oxidation unit. The pound per hour (lb/hr) limits for each of the engines shall be determined using the following equation and pollutant specific grams per brake horsepower-hour (g/bhp-hr) emission factors (ARM 17.8.752):

Emission Factors

Oxides of Nitrogen (NO_x[2]):	1.5 g/hp-hr
Carbon Monoxide (CO):	0.5 g/hp-hr
Volatile Organic Compounds (VOC):	1.0 g/hp-hr

4. BCPL shall not cause or authorize emissions to be discharged into the outdoor atmosphere from any sources installed after November 23, 1968, that exhibit an opacity of 20% or greater averaged over six consecutive minutes (ARM 17.8.304).

5. BCPL shall not cause or authorize the use of any street, road, or parking lot without taking reasonable precautions to control emissions of airborne particulate matter (ARM 17.8.308).

6. BCPL shall treat all unpaved portions of the haul roads, access roads, parking lots, or general plant area with water and/or chemical dust suppressant as necessary to maintain compliance with the reasonable precautions limitation in Section II.A.5 (ARM 17.8.749).

B. Testing Requirements

1. Compressor Engines #1, #2, #3, and #4 shall be tested for NO_x and CO, concurrently, to demonstrate compliance with the emission limits in Section II.A.2. Testing shall occur on an every 5-year basis or according to another testing/monitoring schedule as may be approved by the Department (ARM 17.8.105 and ARM 17.8.749).

2. Compressor Engine #5 shall be tested for NO_x and CO, concurrently, to demonstrate compliance with the emission limits in Section II.A.3. The initial source test shall be performed within 180 days of the initial start up date of the compressor engine. After the initial source test, additional testing shall continue on an every 5-year basis or according to another testing/monitoring schedule as may be approved by the Department (ARM 17.8.105 and ARM 17.8.749).

3. All compliance source tests shall conform to the requirements of the Montana Source Test Protocol and Procedures Manual (ARM 17.8.106).

4. The Department may require further testing (ARM 17.8.105).

[1] NO_x reported as NO_2.
[2] NO_x reported as NO_2.

C. Operational Reporting Requirements

1. BCPL shall supply the Department with annual production information for all emission points, as required by the Department, in the annual emission inventory request. The request will include, but is not limited to, all sources of emissions identified in the emission inventory contained in the permit analysis.

   Production information shall be gathered on a calendar-year basis, and submitted to the Department by the date required in the emission inventory request. Information shall be in the units required by the Department. This information may be used to calculate operating fees, based on actual emissions from the facility, and/or to verify compliance with permit limitations (ARM 17.8.505).

2. BCPL shall notify the Department of any construction or improvement project conducted pursuant to ARM 17.8.745, that would include a change in control equipment, stack height, stack diameter, stack flow, stack gas temperature, source location or fuel specifications, or would result in an increase in source capacity above its permitted operation or the addition of a new emission unit. The notice must be submitted to the Department, in writing, 10 days prior to start up or use of the proposed de minimis change, or as soon as reasonably practicable in the event of an unanticipated circumstance causing the de minimis change, and must include the information requested in ARM 17.8.745(1)(d) (ARM 17.8.745).

3. All records compiled in accordance with this permit must be maintained by BCPL as a permanent business record for at least five years following the date of the measurement, must be available at the plant site for inspection by the Department, and must be submitted to the Department upon request (ARM 17.8.749).

D. Notification

BCPL shall provide the Department (both the Billings regional office and the Helena office) with written notification of the following information within the specified time periods (ARM 17.8.749):

1. Commencement of construction date of engine #5 within 30 days after the commencement of construction.

2. Actual start-up date of engine #5 within 15 days after the actual start-up date of each respective engine.

Section III: General Conditions

A. Inspection – BCPL shall allow the Department's representatives access to the source at all reasonable times for the purpose of making inspections or surveys, collecting samples, obtaining data, auditing any monitoring equipment (CEMS, CERMS) or observing any monitoring or testing, and otherwise conducting all necessary functions related to this permit.

B. Waiver – The permit and the terms, conditions, and matters stated herein shall be deemed accepted if BCPL fails to appeal as indicated below.

C. Compliance with Statutes and Regulations – Nothing in this permit shall be construed as relieving BCPL of the responsibility for complying with any applicable federal or Montana statute, rule, or standard, except as specifically provided in ARM 17.8.740, *et seq*. (ARM 17.8.756).

D. Enforcement – Violations of limitations, conditions and requirements contained herein may constitute grounds for permit revocation, penalties, or other enforcement action as specified in Section 75-2-401, *et seq*., MCA.

E. Appeals – Any person or persons jointly or severally adversely affected by the Department's decision may request, within 15 days after the Department renders its decision, upon affidavit setting forth the grounds therefore, a hearing before the Board of Environmental Review (Board). A hearing shall be held under the provisions of the Montana Administrative Procedures Act. The filing of a request for a hearing does not stay the Department's decision, unless the Board issues a stay upon receipt of a petition and a finding that a stay is appropriate under Section 75-2-211(11)(b), MCA. The issuance of a stay on a permit by the Board postpones the effective date of the Department's decision until conclusion of the hearing and issuance of a final decision by the Board. If a stay is not issued by the Board, the Department's decision on the application is final 16 days after the Department's decision is made.

F. Permit Inspection – As required by ARM 17.8.755, Inspection of Permit, a copy of the air quality permit shall be made available for inspection by the Department at the location of the source.

G. Permit Fee – Pursuant to Section 75-2-220, MCA, as amended by the 1991 Legislature, failure to pay the annual operation fee by BCPL may be grounds for revocation of this permit, as required by that section and rules adopted thereunder by the Board.

Permit Analysis
Bitter Creek Pipelines, LLC
Visborg 25 Battery
Permit #3302-02

I. Introduction/Process Description

Bitter Creek Pipelines, LLC (BCPL) is permitted for the construction and operation of the Visborg 25 Battery natural gas compressor station. The facility is a natural gas compressor station located near the town of Decker, in the SW¼ of Section 25, Township 9 South, Range 40 East, Big Horn County, Montana.

A. Permitted Equipment

The facility consists of the following equipment:

1. (Up to 4) Natural gas fired compressor engines with "lean-burn" technology and catalytic oxidation units with a combined total maximum rated design capacity of up to 1,600 horsepower (hp).
2. (1) Natural gas fired compressor engines with "lean-burn" technology and catalytic oxidation units with a total maximum rated design capacity of up to 860 hp.
3. (1) Natural gas fired heater with a maximum rated design capacity of up to 2.21 million British thermal units per hour (MMBtu/hr).

B. Source Description

The purpose of the BCPL – Visborg 25 Battery natural gas compressor station is to compress natural gas for transmission through the natural gas pipeline. The compression of the gas is accomplished with the compressor engines listed in Section I.A of the permit analysis.

C. Permit History

Permit #3302-00 was issued to BCPL for the construction and operation of the Visborg 25 Battery natural gas compressor station, consisting of six 400-hp catalytic oxidation controlled Waukesha F18GL engines and one natural gas fired heater (up to 2.21 MM Btu/hr). Permit #3302-00 became final on March 31, 2004.

On April 27, 2005, the Montana Department of Environmental Quality (Department) received a request from WBI Holdings, Inc. on behalf of BCPL to write the permit in a de minimis friendly manner. This facility, was permitted to operate up to six natural gas compressor engines utilizing "lean-burn" technology with catalytic oxidation units and a combined total maximum rated design capacity not to exceed 2,400 hp. The permit was also updated to reflect the current permit language and rule references used by the Department. **Permit #3302-01** replaced Permit #3302-00.

D. Current Permit Action

On April 24, 2006, the Department received a request from WBI Holdings, Inc. on behalf of BCPL to reduce the number of permitted engines from six to five and to increase the total hp from 2,400 hp to 2,460 hp. BCPL's request would add an 860-hp lean-burn engine (engine #5) to the existing four 400-hp lean-burn engines (engines #1, #2, #3, and #4). **Permit #3302-02** replaces Permit #3302-01.

E. Additional Information

Additional information, such as applicable rules and regulations, Best Available Control Technology (BACT)/Reasonably Available Control Technology (RACT) determinations, air quality impacts, and environmental assessments, is included in the analysis associated with each change to the permit.

II. Applicable Rules and Regulations

The following are partial explanations of some applicable rules and regulations that apply to the facility. The complete rules are stated in the Administrative Rules of Montana (ARM) and are available, upon request, from the Department. Upon request, the Department will provide references for location of complete copies of all applicable rules and regulations or copies where appropriate.

A. ARM 17.8, Subchapter 1 – General Provisions, including but not limited to:

1. ARM 17.8.101 Definitions. This rule includes a list of applicable definitions used in this subchapter, unless indicated otherwise in a specific subchapter.

2. ARM 17.8.105 Testing Requirements. Any person or persons responsible for the emission of any air contaminant into the outdoor atmosphere shall, upon written request of the Department, provide the facilities and necessary equipment (including instruments and sensing devices) and shall conduct tests, emission or ambient, for such periods of time as may be necessary using methods approved by the Department.

3. ARM 17.8.106 Source Testing Protocol. The requirements of this rule apply to any emission source testing conducted by the Department, any source or other entity as required by any rule in this chapter, or any permit or order issued pursuant to this chapter, or the provisions of the Clean Air Act of Montana, 75-2-101, *et seq*., Montana Code Annotated (MCA).

   BCPL shall comply with the requirements contained in the Montana Source Test Protocol and Procedures Manual, including, but not limited to, using the proper test methods and supplying the required reports. A copy of the Montana Source Test Protocol and Procedures Manual is available from the Department upon request.

4. ARM 17.8.110 Malfunctions. (2) The Department must be notified promptly by telephone whenever a malfunction occurs that can be expected to create emissions in excess of any applicable emission limitation or to continue for a period greater than 4 hours.

5. ARM 17.8.111 Circumvention. (1) No person shall cause or permit the installation or use of any device or any means that, without resulting in reduction of the total amount of air contaminant emitted, conceals or dilutes an emission of air contaminant that would otherwise violate an air pollution control regulation. (2) No equipment that may produce emissions shall be operated or maintained in such a manner as to create a public nuisance.

B. ARM 17.8, Subchapter 2 – Ambient Air Quality, including, but not limited to the following:

1. ARM 17.8.204 Ambient Air Monitoring
2. ARM 17.8.210 Ambient Air Quality Standards for Sulfur Dioxide
3. ARM 17.8.211 Ambient Air Quality Standards for Nitrogen Dioxide
4. ARM 17.8.212 Ambient Air Quality Standards for Carbon Monoxide
5. ARM 17.8.213 Ambient Air Quality Standard for Ozone
6. ARM 17.8.214 Ambient Air Quality Standard for Hydrogen Sulfide
7. ARM 17.8.220 Ambient Air Quality Standard for Settled Particulate Matter
8. ARM 17.8.221 Ambient Air Quality Standard for Visibility
9. ARM 17.8.222 Ambient Air Quality Standard for Lead
10. ARM 17.8.223 Ambient Air Quality Standard for PM_{10}

BCPL must maintain compliance with the applicable ambient air quality standards.

C. ARM 17.8, Subchapter 3 – Emission Standards, including, but not limited to:

1. ARM 17.8.304 Visible Air Contaminants. (1) This rule requires that no person may cause or authorize emissions to be discharged into the outdoor atmosphere from any source installed after November 23, 1968, that exhibit an opacity of 20% or greater averaged over six consecutive minutes.

2. ARM 17.8.308 Particulate Matter, Airborne. (1) This rule requires an opacity limitation of less than 20% for all fugitive emission sources and that reasonable precautions be taken to control emissions of airborne particulate matter. (2) Under this rule, BCPL shall not cause or authorize the use of any street, road, or parking lot without taking reasonable precautions to control emissions of airborne particulate matter.

3. ARM 17.8.309 Particulate Matter, Fuel Burning Equipment. This rule requires that no person shall cause, allow, or permit to be discharged into the atmosphere particulate matter caused by the combustion of fuel in excess of the amount determined by this rule.

4. ARM 17.8.310 Particulate Matter, Industrial Process. This rule requires that no person shall cause, allow, or permit to be discharged into the atmosphere particulate matter in excess of the amount set forth in this rule.

5. ARM 17.8.322 Sulfur Oxide Emissions--Sulfur in Fuel. (4) Commencing July 1, 1972, no person shall burn liquid or solid fuels containing sulfur in excess of 1 pound of sulfur per million Btu fired. (5) Commencing July 1, 1971, no person shall burn any gaseous fuel containing sulfur compounds in excess of 50 grains per 100 cubic feet of gaseous fuel, calculated as hydrogen sulfide at standard conditions. BCPL will burn natural gas in all fuel burning equipment, which will meet this limitation.

6. ARM 17.8.324 Hydrocarbon Emissions--Petroleum Products. (3) No person shall load or permit the loading of gasoline into any stationary tank with a capacity of 250 gallons or more from any tank truck or trailer, except through a permanent submerged fill pipe, unless such tank is equipped with a vapor loss control device as described in (1) of this rule.

7. ARM 17.8.340 Standard of Performance for New Stationary Sources and Emission Guidelines for Existing Sources. This rule incorporates, by reference, 40 CFR 60, Standards of Performance for New Stationary Sources (NSPS). This facility is not an NSPS affected source because it does not meet the definition of any NSPS subpart defined in 40 CFR 60.

8. ARM 17.8.342 Emission Standards for Hazardous Air Pollutants for Source Categories. A major Hazardous Air Pollutant (HAP) source, as defined and applied in 40 CFR 63, shall comply with the requirements of 40 CFR 63, as applicable, including the following subparts:

    - 40 CFR 63, Subpart HH - National Emission Standards for Hazardous Air Pollutants From Oil and Natural Gas Production Facilities.
    - 40 CFR 63, Subpart HHH National Emission Standards for Hazardous Air Pollutants From Natural Gas Transmission and Storage Facilities.
    - 40 CFR 63, Subpart ZZZZ National Emission Standards for Hazardous Air Pollutants for Reciprocating Internal Combustion Engines.

    Based on the information submitted by BCPL, the facility is not subject to the provisions of 40 CFR Part 63, because the facility is not a major source of HAPs.

D. ARM 17.8, Subchapter 4 – Stack Height and Dispersion Techniques, including, but not limited to:

1. ARM 17.8.401 Definitions. This rule includes a list of definitions used in this chapter, unless indicated otherwise in a specific subchapter.

2. ARM 17.8.402 Requirements. BCPL must demonstrate compliance with the ambient air quality standards with a stack height that does not exceed Good Engineering Practices (GEP). The height of the stack for BCPL is below the allowable 65-meter GEP stack height.

E. ARM 17.8, Subchapter 5 – Air Quality Permit Application, Operation and Open Burning Fees, including, but not limited to:

1. ARM 17.8.504 Air Quality Permit Application Fees. This rule requires that an applicant submit an air quality permit application fee concurrent with the submittal of an air quality permit application. A permit application is incomplete until the proper application fee is paid to the Department. BCPL submitted the appropriate application fee for the current permit action.

2. ARM 17.8.505 When Permit Required--Exclusions. An annual air quality operation fee must, as a condition of continued operation, be submitted to the Department by each source of air contaminants holding an air quality permit (excluding an open burning permit) issued by the Department. The air quality operation fee is based on the actual or estimated actual amount of air pollutants emitted during the previous calendar year.

    An air quality operation fee is separate and distinct from an air quality permit application fee. The annual assessment and collection of the air quality operation fee, described above, shall take place on a calendar-year basis. The Department may insert into any final permit issued after the effective date of these rules, such conditions as may be necessary to require the payment of an air quality operation fee on a calendar-year basis, including provisions that prorate the required fee amount.

F. ARM 17.8, Subchapter 7 – Permit, Construction and Operation of Air Contaminant Sources, including, but not limited to:

1. ARM 17.8.740 Definitions. This rule is a list of applicable definitions used in this chapter, unless indicated otherwise in a specific subchapter.

2. ARM 17.8.743 Montana Air Quality Permits--When Required. This rule requires a person to obtain an air quality permit or permit alteration to construct, alter, or use any air contaminant sources that have the Potential to Emit (PTE) greater than 25 tons per year of any pollutant. BCPL has a PTE greater than 25 tons per year of nitrogen oxides (NO_X), carbon monoxide (CO), and Volatile Organic Compounds (VOC); therefore, an air quality permit is required.

3. ARM 17.8.744 Montana Air Quality Permits--General Exclusions. This rule identifies the activities that are not subject to the Montana Air Quality Permit program.

4. ARM 17.8.745 Montana Air Quality Permits—Exclusion for De Minimis Changes. This rule identifies the de minimis changes at permitted facilities that do not require a permit under the Montana Air Quality Permit Program.

5. ARM 17.8.748 New or Modified Emitting Units--Permit Application Requirements. (1) This rule requires that a permit application be submitted prior to installation, alteration, or use of a source. BCPL submitted the required permit application for the current permit action. (7) This rule requires that the applicant notify the public by means of legal publication in a newspaper of general circulation in the area affected by the application for a permit. BCPL submitted an affidavit of publication of public notice for the April 7, 2006, issue of the *Billings Gazette*, a newspaper of general circulation in the town of Billings in Yellowstone County, as proof of compliance with the public notice requirements.

6. ARM 17.8.749 Conditions for Issuance or Denial of Permit. This rule requires that the permits issued by the Department must authorize the construction and operation of the facility or emitting unit subject to the conditions in the permit and the requirements of this subchapter. This rule also requires that the permit must contain any conditions necessary to assure compliance with the Federal Clean Air Act (FCAA), the Clean Air Act of Montana, and rules adopted under those acts.

7. ARM 17.8.752 Emission Control Requirements. This rule requires a source to install the maximum air pollution control capability that is technically practicable and economically feasible, except that BACT shall be utilized. The required BACT analysis is included in Section III of this permit analysis.

8. ARM 17.8.755 Inspection of Permit. This rule requires that air quality permits shall be made available for inspection by the Department at the location of the source.

9. ARM 17.8.756 Compliance with Other Requirements. This rule states that nothing in the permit shall be construed as relieving BCPL of the responsibility for complying with any applicable federal or Montana statute, rule, or standard, except as specifically provided in ARM 17.8.740, *et seq*.

10. ARM 17.8.759 Review of Permit Applications. This rule describes the Department's responsibilities for processing permit applications and making permit decisions on those permit applications that do not require the preparation of an environmental impact statement.

11. ARM 17.8.760 Additional Review of Permit Applications. This rule describes the Department's responsibilities for processing permit applications and making permit decisions on those applications that require an environmental impact statement.

12. ARM 17.8.762 Duration of Permit. An air quality permit shall be valid until revoked or modified, as provided in this subchapter, except that a permit issued prior to construction of a new or altered source may contain a condition providing that the permit will expire unless construction is commenced within the time specified in the permit, which in no event may be less than 1 year after the permit is issued.

13. ARM 17.8.763 Revocation of Permit. An air quality permit may be revoked upon written request of the permittee, or for violations of any requirement of the Clean Air Act of Montana, rules adopted under the Clean Air Act of Montana, the FCAA, rules adopted under the FCAA, or any applicable requirement contained in the Montana State Implementation Plan (SIP).

14. ARM 17.8.764 Administrative Amendment to Permit. An air quality permit may be amended for changes in any applicable rules and standards adopted by the Board of Environmental Review (Board) or changed conditions of operation at a source or stack that do not result in an increase of emissions as a result of those changed conditions. The owner or operator of a facility may not increase the facility's emissions beyond permit limits unless the increase meets the criteria in ARM 17.8.745 for a de minimis change not requiring a permit, or unless the owner or operator applies for and receives another permit in accordance with ARM 17.8.748, ARM 17.8.749, ARM 17.8.752, ARM 17.8.755, and ARM 17.8.756, and with all applicable requirements in ARM Title 17, Chapter 8, Subchapters 8, 9, and 10.

15. ARM 17.8.765 Transfer of Permit. This rule states that an air quality permit may be transferred from one person to another if written notice of Intent to Transfer, including the names of the transferor and the transferee, is sent to the Department.

G. ARM 17.8, Subchapter 8 – Prevention of Significant Deterioration of Air Quality, including, but not limited to:

1. ARM 17.8.801 Definitions. This rule is a list of applicable definitions used in this subchapter.

2. ARM 17.8.818 Review of Major Stationary Sources and Major Modifications--Source Applicability and Exemptions. The requirements contained in ARM 17.8.819 through ARM 17.8.827 shall apply to any major stationary source and any major modification, with respect to each pollutant subject to regulation under the FCAA that it would emit, except as this subchapter would otherwise allow.

This facility is not a major stationary source since this facility is not a listed source and the facility's PTE is below 250 tons per year of any pollutant (excluding fugitive emissions).

H. ARM 17.8, Subchapter 12 – Operating Permit Program Applicability, including, but not limited to:

1. ARM 17.8.1201 Definitions. (23) Major Source under Section 7412 of the FCAA is defined as any source having:

   a. PTE > 100 tons/year of any pollutant;

   b. PTE > 10 tons/year of any one HAP, PTE > 25 tons/year of a combination of all HAPs, or lesser quantity as the Department may establish by rule; or

   c. PTE > 70 tons/year of particulate matter with an aerodynamic diameter of 10 microns or less (PM_{10}) in a serious PM_{10} nonattainment area.

2. ARM 17.8.1204 Air Quality Operating Permit Program. (1) Title V of the FCAA amendments of 1990 requires that all sources, as defined in ARM 17.8.1204(1), obtain a Title V Operating Permit. In reviewing and issuing Air Quality Permit #3302-02 for BCPL, the following conclusions were made:

   a. The facility's PTE is less than 100 tons/year for any pollutant.

   b. The facility's PTE is less than 10 tons/year for and one HAP and less than 25 tons/year for all HAPs.

   c. This source is not located in a serious PM_{10} nonattainment area.

   d. This facility is not subject to any current NSPS standards.

   e. This facility is not subject to any current National Emission Standards for Hazardous Air Pollutants (NESHAP) standards.

   f. This source is not a Title IV affected source, nor a solid waste combustion unit.

   g. This source is not an Environmental Protection Agency (EPA) designated Title V source.

   Based on these facts, the Department determined that BCPL Visborg 25 Battery natural gas compressor station would be a minor source of emissions as defined under Title V.

III. BACT Determination

A BACT determination is required for each new or altered source. BCPL shall install on the new or altered source the maximum air pollution control that is technically practicable and economically feasible, except that BACT shall be utilized. A BACT determination is required for each new or modified source. The 400-hp engines are not being changed through this modification; therefore, a BACT analysis is not required for engines #1- #4. A BACT analysis is required for the addition of the 860-hp engine (engine #5). The BACT analysis addresses the available methods for controlling CO, NO_x, VOC, particulate matter with an aerodynamic diameter of 10 microns or less (PM_{10}), and sulfur dioxide (SO_2) emissions from the proposed project. The Department reviewed the BACT analysis submitted by BCPL, as well as previous BACT determinations in order to make the following BACT determinations.

A. CO BACT

As part of the CO BACT analyses, the following control technologies were reviewed:

- Lean-burn engine with a catalytic oxidation unit and an air-to-fuel ratio (AFR) controller;
- Lean-burn engine with a catalytic oxidation unit;
- Lean-burn engine with an AFR controller;
- Lean-burn engine with a non-selective catalytic reduction (NSCR) unit and AFR controller;
- Lean-burn engine with an NSCR unit;
- Lean-burn engine with no additional controls;
- Rich-burn engine with an NSCR unit and an AFR controller;
- Rich-burn engine with an NSCR unit;
- Rich-burn engine with an AFR controller;
- Rich-burn engine with a catalytic oxidation unit and an AFR controller;
- Rich-burn engine with a catalytic oxidation unit; and
- Rich-burn engine with no additional controls.

Catalytic oxidation applied to a rich-burn is technically infeasible because the oxygen concentration from a rich-burn engine is not high enough for a catalytic oxidizer to operate properly. An NSCR unit applied to a lean-burn engine or lean-burn retrofit engine is also technically infeasible because the NSCR unit needs a rich fuel-to-air ratio to operate effectively. AFR controllers for the lean-burn Caterpillar G3508LE engine are not equipment currently provided by industry.

Technically feasible control options, in order of the highest control efficiency to the lowest control efficiency, include:

800-hp Range Engines

Control Technology	% Control	CO Emission Rate (g/bhp-hr)
Lean-Burn with Catalytic Oxidizer and/or AFR	97.5	0.5
Rich -Burn with NSCR and/or AFR	90.0	2.0
Lean-Burn without Control or with only AFR	85.0	3.0
Rich-Burn without Control or with only AFR	--	20.0

The control methods listed above are widely used; these control options cannot be eliminated solely based on environmental or energy impacts. Lean-burn engines do emit relatively higher HAP (formaldehyde) emissions than rich-burn engines. Lean-burn engines cannot be eliminated based on higher formaldehyde emissions, but the higher formaldehyde emissions can affect the BACT determination. 800-hp range engines without AFR control are removed from the analysis because AFR control would be required and is consistent with other recently permitted similar sources.

The following tables show the cost per ton of CO reduction achieved for the various control options.

800-hp Engine Range Cost Effectiveness

Control Technology	Total Annual Cost ($)	Resulting CO Emissions (tpy)	Cost Effectiveness ($/ton)
Controlled Emissions			
Rich-burn Engine with NSCR and with AFR (840 hp)	79,045	16.2	541
Lean-burn Engine with Oxidation Catalyst and with AFR (860 hp)	80,825	4.2	3,886
Baseline Emissions			
Rich-burn Engine without Control and with AFR (840 hp)	--	162.4	--
Lean-burn Engine without Control and with AFR (860 hp)	--	25.0	--

- **3,886 = 80,825 / (25.0-4.2)**

The use of the rich-burn engine with an NSCR unit and AFR controller is the most cost-effective method to control CO emissions. The Department agrees that rich-burn engines with an NSCR unit and AFR controller, with an emission limit of 2.0 grams per brake horsepower-hour (g/bhp-hr) are BACT. A rich-burn engine equipped with an NSCR unit and an AFR controller is frequently used in the natural gas compression industry and the BACT determination is consistent with other recently permitted similar sources. Because a 4-stroke lean-burn engine equipped with an oxidation catalyst and with an emission limit of 0.5 g/bhp-hr provide environmental benefits that are equal to or exceed that of the rich-burn engines equipped with NSCR and AFR the Department determined that they can be utilized in place of the rich-burn engines.

B. NO_X BACT

As part of the NO_X BACT analyses, the following control technologies were reviewed:

- Lean-burn engine with an SCR unit and AFR controller;
- Lean-burn engine with an SCR unit;
- Lean-burn engine with an AFR controller;
- Lean-burn engine with an NSCR unit and AFR controller;
- Lean-burn engine with an NSCR unit;
- Lean-burn engine with no additional controls;
- Rich-burn engine with an NSCR unit and an AFR controller;
- Rich-burn engine with an NSCR unit;
- Rich-burn engine with an AFR controller;
- Rich-burn engine with an SCR and an AFR controller;
- Rich-burn engine with an SCR; and
- Rich-burn engine with no additional controls.

SCR applied to rich-burn engines is technically infeasible because the oxygen concentration from rich-burn engines is not high enough for an SCR to operate properly. NSCR on lean-burn engines is technically infeasible because the engine must burn a rich fuel mixture for the NSCR to properly operate. Adverse environmental impacts could occur with an SCR unit operating on lean-burn engines at variable loads as required by a typical compressor engine. SCR units are typically installed on process units that have a constant or low variability in load fluctuation. When engine load changes excess ammonia (ammonia slip) may pass through the system and out the stack or not enough ammonia will

be injected. SCR units are technically infeasible because of the potential adverse environmental impacts from the typical load fluctuations that are required for compressor engines. SCR units have not been installed on lean-burn compressor engines in Montana.

Technically feasible control options, in order of the highest control efficiency to the lowest control efficiency, include:

800-hp Range Engines

Control Technology	% Control	NO_X Emission Rate (g/bhp-hr)
Rich-Burn with NSCR and/or AFR	95.0	1.0
Lean-Burn with Catalytic Oxidizer and/or AFR	92.5	1.5
Lean-Burn with Catalytic Oxidizer and/or AFR	90.0	2.0
Lean-Burn without Control	90.0	2.0
Rich-Burn without Control or with only AFR	--	20.0

The control methods listed above are widely used; these control options cannot be eliminated solely based on environmental or energy impacts.

Lean-burn engines do emit relatively higher HAP (formaldehyde) emissions than rich-burn engines. Lean-burn engines cannot be eliminated based on higher formaldehyde emissions, but the higher formaldehyde emissions can affect the BACT determination. 800-hp range engines without AFR control are removed from the analysis because AFR control would be required and is consistent with other recently permitted similar sources.

The table below shows the cost per ton of NO_X reduction achieved for the various control options.

800-hp Range Engine Cost Effectiveness

Control Technology	Total Annual Cost ($)	Resulting NO_X Emissions (tpy)	Cost Effectiveness ($/ton)
Controlled Emissions			
Rich-Burn Engine with NSCR and with AFR (840 hp)	79,045	8.1	513
Lean-Burn Engine without Control and with AFR (860 hp)		12.5	0
Baseline Emissions			
Rich-Burn Engine without Control and with AFR (840 hp)	--	162.0	--
Lean-Burn Engine without Control and with AFR (860 hp)	--	16.6	--

- **513 = 79,045 / (162.0-8.1)**

The use of the lean-burn engine without control is the most cost-effective method to control NO_X emissions. The rich-burn engine equipped with an NSCR unit and an AFR controller has the same emission rate of 1.0 g/bhp-hr as the lean-burn engine. The cost effectiveness of the 840-hp rich-burn engine is $513 per ton. The cost effectiveness of the 860-hp lean-burn engine is $0 per ton. An 840-hp rich-burn engine would cost an additional $79,045 but no additional tons of NO_X would be removed. The Department agrees that the emission limit of 1.0 g/bhp-hr using a lean-burn engine without control or with an AFR only for control of NO_X emissions is BACT. A lean-burn engine equipped with no additional control or with an AFR only is frequently used in the natural gas compression industry and the BACT determination is consistent with other recently permitted similar sources.

The 860-hp Caterpillar G3512LE lean-burn engine does have a higher NOx emission rate (1.5 g/bhp-hr) than the 840-hp Waukesha 3524GSI rich-burn engine (0.5 g/bhp-hr). However, operation of the 840-hp is cost prohibitive on an incremental cost basis due to decreased fuel efficiency. The following table shows the incremental cost comparison between the two engines.

800-hp Range Engine Incremental Cost

Control Technology	Fuel Consumption (Btu/hp-hr)	Fuel Cost ($/hp-hr)	Fuel Cost ($/hp-yr)	Fuel Cost Difference ($/hp-yr)	Approximate NO_x Decrease (ton/yr)	Approximate Additional Incremental Cost ($/ton NO_x)
Waukesha 3524GSI (840 hp)	7,670	0.0767	$672	$17.78	4.05	$3,686.48
Caterpillar G3512LE (860 hp)	7,467	0.0747	$654	$0.00	0.00	

The 840-hp Waukesha 3524GSI rich-burn engine would cost an additional $3,686 per additional ton of NO_X removed beyond the 860-hp Caterpillar G3512LE lean-burn engine. The Department agrees that the emission limit of 1.5 g/bhp-hr using a Caterpillar G3512LE 860-hp lean-burn engine is BACT.

C. VOC BACT

Summary

The Department determined that a VOC emission limit of 1.90 lb/hr, which corresponds to an emission factor of 1.0 g/bhp-hr, constitutes BACT for VOC emissions resulting from the operation of the proposed natural gas compressor engines.

The compressor engines proposed in this permitting action can achieve the BACT emission limits with no additional controls. Furthermore, the cost to control these emissions would be cost prohibitive given the limited amount of VOC emissions from the proposed compressor engines. Therefore, BCPL's proposal to use lean-burn technology and to utilize good combustion practices and engineering design to effectively reduce VOC emissions is an economically and environmentally reasonable option.

D. SO_2/PM_{10} BACT

Summary

The combustion of natural gas in the proposed lean-burn compressor engines produces very low PM_{10} and SO_2 emissions. Furthermore, the cost to control these emissions would be cost prohibitive given the limited amount of PM_{10} and SO_2 emissions from the proposed compressor engines. Therefore, the Department determined that no additional control would constitute BACT for the proposed project. BCPL's proposal to utilize good combustion practices and engineering design is an economically and environmentally feasible option.

The control options and emission limits selected are consistent with other recently permitted similar sources.

IV. Emission Inventory

	Ton/year					
Source	PM_{10}	NO_x	VOC	CO	SO_x	HCHO
(Up to 4 – Units #1-#4) "Lean-Burn" Compressor Engines with a Combined Total Maximum Rated Design Capacity of up to 1,600 hp	.001	15.45	15.45	7.72	0.042	0.70
(Up to 1 – Units #5) "Lean-Burn" Compressor Engines with a Total Maximum Rated Design Capacity of up to 860 hp	.002	12.46	8.30	4.15	0.024	0.57
(1 – Unit #7) Heater with a Maximum Rated Design Capacity of up to 2.21 Million British Thermal Units Per Hour (MMBtu/hr)	.075	0.97	0.05	0.81	.006	0.00
Total	**0.078**	**28.88**	**23.8**	**12.68**	**0.072**	**1.27**

(Up to 5 – Units #1-#5) "Lean Burn" Compressor Engines with a Combined Total Maximum Rated Design Capacity of up to 2460 hp

Brake Horsepower: 2460 (Up to a Maximum Total Design Capacity)
Hours of operation: 8760 hr/yr

PM_{10} Emissions
Emissions for (4) 400-hp engines
Emission Factor: 7.71E-05 lb/MMBtu (AP-42, Chapter 3, Table 3.2-2, 7/00)
Fuel Consumption: 11.44 MMBtu/hr (Maximum Design)
Calculations: 11.44 MMBtu/hr * 7.71E-05 lb/MMBtu = 0.00042 lb/hr
0.00042 lb/hr * 8760 hr/hr * 0.0005 ton/lb = 0.001 ton/yr

Emissions for (1) 860-hp engines
Emission Factor: 7.71E-05 lb/MMBtu (AP-42, Chapter 3, Table 3.2-2, 7/00)
Fuel Consumption: 6.42 MMBtu/hr (Maximum Design)
Calculations: 6.42 MMBtu/hr * 7.71E-05 lb/MMBtu = 0.00024 lb/hr
0.00024 lb/hr * 8760 hr/hr * 0.0005 ton/lb = 0.002 ton/yr

NO_x Emissions
Emissions for (4) 400-hp engines
Emission factor: 1.00 gram/hp-hour (BACT Determination)
Calculations: 1.00 gram/hp-hour * 1600 hp * 0.002205 lb/gram = 3.528 lb/hr
3.528 lb/hr * 8760 hr/yr * 0.0005 ton/lb = 15.45 ton/yr

Emissions for (1) 860-hp engine
Emission factor: 1.50 gram/hp-hour (BACT Determination)
Calculations: 1.50 gram/hp-hour * 860 hp * 0.002205 lb/gram = 2.844 lb/hr
2.844 lb/hr * 8760 hr/yr * 0.0005 ton/lb = 12.46 ton/yr

Total NO_x Emissions from all engines = 15.45 ton/yr + 12.46 ton/yr = 27.91 ton/yr

VOC Emissions

Emissions for (4) 400-hp engines

Emission factor: 1.00 gram/hp-hour (BACT Determination)

Calculations: 1.00 gram/hp-hour * 1600 hp * 0.002205 lb/gram = 3.528 lb/hr

3.528 lb/hr * 8760 hr/yr * 0.0005 ton/lb = 15.45 ton/yr

Emissions for (1) 860-hp engine

Emission factor: 1.00 gram/hp-hour (BACT Determination)

Calculations: 1.00 gram/hp-hour * 860 hp * 0.002205 lb/gram = 1.896 lb/hr

1.896 lb/hr * 8760 hr/yr * 0.0005 ton/lb = 8.30 ton/yr

Total VOC Emissions from all engines = 7.73 ton/yr + 8.30 ton/yr = 16.03 ton/yr

CO Emissions

Emissions for (4) 400-hp engines

Emission factor: 0.50 gram/hp-hour (BACT Determination)

Calculations: 0.50 gram/hp-hour * 1600 hp * 0.002205 lb/gram = 1.764 lb/hr

1.764 lb/hr * 8760 hr/yr * 0.0005 ton/lb = 7.72 ton/yr

Emissions for (1) 860-hp engine

Emission factor: 0.50 gram/hp-hour (BACT Determination)

Calculations: 0.50 gram/hp-hour * 860 hp * 0.002205 lb/gram = 0.948 lb/hr

0.948 lb/hr * 8760 hr/yr * 0.0005 ton/lb = 4.15 ton/yr

SO_2 Emission

Emissions for (4) 400-hp engines

Emission factor: 5.88E-04 lb/MMBtu (AP-42, Chapter 3, Table 3.2-2, 7/00)

Fuel Consumption: 11.44 MMBtu/hr (Maximum Design)

Calculations: 11.44 MMBtu/hr * 5.88E-04 lb/MMBtu = 0.0095 lb/hr

0.0095 lb/hr * 8760 hr/hr * 0.0005 ton/lb = 0.042 ton/yr

Emissions for (1) 860-hp engine

Emission factor: 5.88E-04 lb/MMBtu (AP-42, Chapter 3, Table 3.2-2, 7/00)

Fuel Consumption: 6.42 MMBtu/hr (Maximum Design)

Calculations: 6.42 MMBtu/hr * 5.88E-04 lb/MMBtu = 0.0054 lb/hr

0.0054 lb/hr * 8760 hr/hr * 0.0005 ton/lb = 0.024 ton/yr

Formaldehyde (HCOH) Emissions

Emissions for (4) 400-hp engines

Emission factor: 0.04 lb/hr * 4 = 0.16 lb/hr (Company Information)

Calculations: 0.16 lb/hr * 8760 hr/yr * 0.0005 ton/lb = 0.70 ton/yr

Emissions for (1) 860-hp engine

Emission factor: 0.13 lb/hr * 1 = 0.13 lb/hr (Company Information)

Calculations: 0.13 lb/hr * 8760 hr/yr * 0.0005 ton/lb = 0.57 ton/yr

(1 – Unit #7) Heater with a Maximum Rated Design Capacity of up to 2.21 Million British Thermal Units Per Hour (MMBtu/hr)

Heat Output: 2.21 MMBtu/hr (Maximum Design)
Hours of Operation: 8760 hr/yr
Fuel Heating Value: 0.001 MMScf/MMBtu
Fuel Consumption: 2.21 MMBtu/hr * 0.001 MMScf/MMBtu * 8760 hr/yr = 19.36 MMScf/yr

PM_{10} Emissions
Emission Factor: 7.71 lb/MMScf (AP-42, Table 1.4-1, 7/00)
Calculations: 7.71 lb/MMScf * 19.36 MMScf/yr * 0.0005 ton/lb = 0.075 ton/yr

NO_x Emissions
Emission factor: 100.00 lb/MMScf (AP-42, Table 1.4-1, 7/00)
Calculations: 100.00 lb/MMScf * 19.36 MMScf/yr * 0.0005 ton/lb = 0.97 ton/yr

VOC Emissions
Emission factor: 5.50 lb/MMScf (AP-42, Chapter 1, Table 1.4-1, 7/98)
Calculations: 5.50 lb/MMScf * 19.36 MMScf/yr * 0.0005 ton/lb = 0.05 ton/yr

CO Emissions
Emission factor: 84.00 lb/MMScf (AP-42, Chapter 1, Table 1.4-1, 7/98)
Calculations: 84.00 lb/MMScf * 19.36 MMScf/yr * 0.0005 ton/lb = 0.81 ton/yr

SO_2 Emission
Emission factor: 0.60 lb/MMScf (AP-42, Chapter 1, Table 1.4-1, 7/98)
Calculations: 0.60 lb/MMScf * 19.36 MMScf/yr * 0.0005 ton/lb = 0.006 ton/yr

HCOH Emission
Emission factor: 0.075 lb/MMScf (AP-42, Chapter 1, Table 1.4-1, 7/98)
Calculations: 0.075 lb/MMScf * 19.36 MMScf/yr * 0.0005 ton/lb = 0.0007 ton/yr

V. Existing Air Quality

The BCPL Visborg 25 Battery natural gas compressor station is located in the SW¼ of Section 25, Township 9 South, Range 40 East, in Big Horn County, Montana. Big Horn County is unclassifiable/attainment for the National Ambient Air Quality Standards (NAAQS) for all criteria pollutants.

VI. Ambient Air Impact Analysis

The Department determined, based on the ambient air quality modeling submitted with Permit #3302-02 and the permit conditions placed in Permit #3302-02, that the impact from this permitting action will be minor. The Department believes the current permitting action will not cause or contribute to a violation of any ambient air quality standard.

Aspen Consulting & Engineering (Aspen) conducted air quality modeling for the BCPL Visborg 25 Battery natural gas compressor station as part of the BCPL air quality permit application for Permit #3302-02. The modeling was done to demonstrate compliance with the National Ambient Air Quality Standards and Montana Ambient Air Quality Standards (MAAQS). In addition, although a New Source Review (NSR) - Prevention of Significant Deterioration of Air Quality (PSD) increment analysis was not required for the permitting action, the Department requested BCPL

complete a PSD increment analysis. Due to the increased coal-bed methane projects, the Department determined that NO_x increment modeling was necessary to track the effects of industry growth in this area.

The Environmental Protection Agency (EPA) approved Industrial Source Complex (ISC3) model was used along with five years of off-site meteorological data and downwash was calculated using the EPA's Building Profile Input Program (BPIP). Surface meteorological data for the years 1984, 1987-1990 was collected at the Sheridan County Airport in Sheridan, Wyoming and the upper air data utilized for the project was collected at the Lander Hunt Field, Wyoming site.

Receptor grid elevations were derived from digital elevation model (DEM) files using the United States Geological Survey (USGS) 7.5-minute series (1:24,000 scale) digitized topographical maps. The Decker, Holmes Ranch, and Pearl School quadrangles as well as the Acme, Bar N Draw, and Cedar Canyon Wyoming quadrangles in the USGS DEM file format were used to develop the receptor grid. Receptors were placed at not more than 50-meter (m) intervals along the fence-line, 100-m spacing from the fence-line to 1 kilometer (km), 250-m spacing from 1 to 3 km, and 500 meters from 3 to 10 km. Aspen also placed receptors along the southern boundary of the Northern Cheyenne Indian Reservation (NCIR) to demonstrate compliance with the Class I increment.

Modeling was conducted for both CO and NOx emissions from the Bitter Creek Visborg 25 Battery. While the CO modeling only included emissions from the Visborg 25 Battery, the NOx modeling included additional NOx emission sources located within 20 km of the site. A total of 325 emission units at CBM facilities in Montana and Wyoming were included in the cumulative NOx impact modeling.

Table 1 lists the emission rates modeling parameters entered into the model for the Visborg 25 Battery. A list of the modeling parameters for the other modeled sources is on file at the Department.

Table 1: Emission Rates and Modeling Parameters Entered in the ISC3 Model

Source ID	CO (g/s)	NO_2 (g/s)	UTM Coordinates		Stack Parameters			
			Easting (m)	Northing (m)	Height (m)	Temp. (°K)	Velocity (m/s)	Diameter (m)
VIS25#1	0.055	0.111	359,720	4,985,720	6.48	772	37.9	0.204
VIS25#2	0.055	0.111	359,720	4,985,729	6.48	772	37.9	0.204
VIS25#3	0.055	0.111	359,720	4,985,738	6.48	772	37.9	0.204
VIS25#4	0.055	0.111	359,720	4,985,747	6.48	772	37.9	0.204
VIS25#5	0.12	0.359	359,720	4,985,756	7.01	700	44.59	0.253

Table 2 shows the air dispersion modeling results for CO emissions. The modeled concentrations for the CO emissions from the Visborg 25 Battery are below the modeling significance levels, so additional CO modeling is not required. Peak modeled impacts occurred at or near the fenceline of the facility. Modeled 1-hour and 8-hour CO concentrations are the high-second-high modeled impact. Background concentrations are the typical values provided by the Department.

Table 2: Ambient Air Dispersion Results for CO (Peak Impacts)

Year	Avg. Period	Modeled Conc. ($\mu g/m^3$)	Background Conc. ($\mu g/m^3$)	Ambient Conc. ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)	MAAQS ($\mu g/m^3$)	Modeling Significance
1984	1-HR	116	1725	1266	40,000	26,450	2000
1984	8-HR	203	1150	1928	10,350	10,350	500
1987	1-HR	81	1725	1231	40,000	26,450	2000
1987	8-HR	202	1150	1927	10,350	10,350	500
1988	1-HR	56	1725	1206	40,000	26,450	2000
1988	8-HR	198	1150	1923	10,350	10,350	500
1989	1-HR	90	1725	1240	40,000	26,450	2000
1989	8-HR	199	1150	1924	10,350	10,350	500
1990	1-HR	55	1725	1205	40,000	26,450	2000
1990	8-HR	203	1150	1928	10,350	10,350	500

NOx emissions from the changes at Visborg 25 and at the other facilities were modeled to show compliance with the NAAQS/MAAQS. An increment analysis was not required for this permitting action, but has been provided to address concerns about the status of the PSD Class I and Class II increments in southeast Montana.

The same source groups were entered into the model for the Class I/Class II increment analysis as were entered for the ambient standards. PSD increment compliance demonstrations are typically made using actual emissions from existing sources, but this information was not available so permitted allowable emissions were entered into the PSD increment model.

Table 3 shows the NO_2 modeling results. The "All" source group includes the Visborg 25 facility and all other modeled facilities. The "New" source group only includes the proposed changes at the Visborg 25 site. The annual NAAQS for NO_2 is 100 $\mu g/m^3$ while the annual MAAQS is 94 $\mu g/m^3$ and the Montana 1-hour standard NO_2 is 564 $\mu g/m^3$. The Ambient Ratio Method (ARM) and the Ozone Limiting Method (OLM) are used to convert the modeled NOx concentrations to NO_2 for comparison to the NAAQS/MAAQS (as per MDEQ guidance). The annual Class II PSD NO_2 increment is 25 $\mu g/m^3$. Only the modeled contribution, without inclusion of the background concentration, is compared to the PSD Increment.

The peak modeled concentrations for the annual averaging time occurs at a different receptor for all of the development and than for the Visborg 25 Battery. The controlling receptor for all of the coal bed methane development for the Class II increment and the NAAQS/MAAQS is located approximately 2.6 km southwest of the Visborg 25 Battery.

Table 3: Ambient Air Dispersion Model Results for NO_2 emissions

Year	Avg. Period	Source Group	Modeled NOx Conc. ($\mu g/m^3$)	NO_2 Conc. ($\mu g/m^3$)	Back-ground Conc. ($\mu g/m^3$)	Ambient Conc. ($\mu g/m^3$)	% of Class II PSD Increment ($\mu g/m^3$)	% of MAAQS
1984	Annual	All	22.2	16.7	6	23	67	25
	1-hr		579	246	75	321		57
	Annual	New	199	1.5	6	8	6.0	8.5
	1-hr		118	118	75	193		34
1987	Annual	All	23.3	17.5	6	24	70	25
	1-hr		578	246	75	321		57
	Annual	New	1.87	1.4	6	7	5.6	7.4
	1-hr		106	106	75	181		32
1988	Annual	All	21.0	15.8	6	22	63	23
	1-hr		486	236	75	311		55
	Annual	New	2.4	1.8	6	8	9.6	8.5
	1-hr		108	108	75	183		32
1989	Annual	All	22.4	16.8	6	23	67	25
	1-hr		570	245	75	320		57
	Annual	New	1.86	1.4	6	7	5.6	7.4
	1-hr		130	130	75	205		36
1990	Annual	All	22.2	16.7	6	23	67	25
	1-hr		563	244	75	319		57
	Annual	New	1.48	1.18	6	7	4.7	7.4
	1-hr		119	119	75	194		34

[a] Concentration calculated using the Ozone Limiting Method.
[b] Applying the Ambient Ratio Method with National Default of 75%.
[C] 1-hr emissions are high-second-high

Table 4 shows the Class I increment results for the NCIR receptors. The submitted modeling included receptors along the southern boundary of the NCIR, but the receptors did not cover the full boundary. For each year, the peak modeled impacts occurred at the western-most receptor. Therefore, it is likely that the modeling results presented in Table 4 do not represent the highest impacts at NCIR. The Class I modeling includes all CBM sources used in the NAAQS/MAAQS model.

Table 4: Class I Modeling Results

Year	Avg. Period	Source Group	Predicted Max NO_2 Impact ($\mu g/m^3$)	Class I Increment ($\mu g/m^3$)	% Class I Increment Consumed
1984	Annual	All	0.56	2.5	22
1987	Annual	All	0.50	2.5	20
1988	Annual	All	0.41	2.5	16
1989	Annual	All	0.38	2.5	15
1990	Annual	All	0.42	2.5	17

In summary, modeling was conducted to determine compliance with the MAAQS, the NAAQS, and the NO_x PSD increment. The modeling results demonstrated that neither the MAAQS nor the NAAQS would be violated. In addition, the PSD increment analysis for NO_x demonstrated that the Class II NO_x increment would not be exceeded.

VII. Taking or Damaging Implication Analysis

As required by 2-10-105, MCA, the Department conducted a private property taking and damaging assessment and determined there are no taking or damaging implications.

VIII. Environmental Assessment

An environmental assessment, required by the Montana Environmental Policy Act, was completed for this project. A copy is attached.

DEPARTMENT OF ENVIRONMENTAL QUALITY
Permitting and Compliance Division
Air Resources Management Bureau
P.O. Box 200901, Helena, Montana 59620
(406) 444-3490

FINAL ENVIRONMENTAL ASSESSMENT (EA)

Issued To: Bitter Creek Pipelines, LLC
Visborg 25 Battery
P.O. Box 131
Glendive, MT 59330

Air Quality Permit Number: 3302-02

Preliminary Determination Issued: June 2, 2006
Department Decision Issued: June 20, 2006
Permit Final: July 6, 2006

1. *Legal Description of Site*: BCPL – Visborg 25 Battery would be located in Big Horn County, Montana, near the town of Decker. The legal description would be the SW¼ of Section 25, Township 9 South, Range 40 East.

2. *Description of Project*: BCPL proposed to reduce the number of permitted engines from six to five and to increase the total hp from 2,400 hp to 2,460 hp. BCPL's request would add an 860-hp lean-burn engine (engine #5) to the existing four 400-hp lean-burn engines (engines #1, #2, #3, and #4).

3. *Objectives of Project*: The proposed project would provide operational flexibility by allowing the facility to change out engines on a relatively short notice.

4. *Alternatives Considered*: In addition to the proposed action, the Department also considered the "no-action" alternative. The "no-action" alternative would deny issuance of the Montana Air Quality Permit to the proposed facility. However, the Department does not consider the "no-action" alternative to be appropriate because BCPL demonstrated compliance with all applicable rules and regulations as required for permit issuance. Therefore, the "no-action" alternative was eliminated from further consideration.

5. *A Listing of Mitigation, Stipulations, and Other Controls*: A list of enforceable conditions, including a BACT analysis, would be included in Permit #3302-00.

6. *Regulatory Effects on Private Property*: The Department considered alternatives to the conditions imposed in this permit as part of the permit development. The Department determined that the permit conditions would be reasonably necessary to ensure compliance with applicable requirements and would demonstrate compliance with those requirements and would not unduly restrict private property rights.

7. *Coal Bed Methane Programmatic Environmental Impact Statement:* The Bureau of Land Management (BLM), the Department, and the Montana Board of Oil and Gas Conservation (MBOGC) prepared a statewide Environmental Impact Statement (EIS) for coal bed methane development in Montana. The purpose of the EIS was to analyze potential impacts from projected oil and gas activities, particularly from coal bed methane exploration, production, development, and

reclamation activities from a broad planning perspective. The planning area (analysis area) was statewide with emphasis placed on the Powder River and Billings Resource Management Plans (RMP), as well as, Blaine, Gallatin, and Park Counties. The BLM, the Department, and the MBOGC were joint lead agencies responsible for preparing the EIS. The lead agencies consulted with the United States Fish and Wildlife Service (USFWS), the Montana Bureau of Mines and Geology (MBMG), the Montana Department of Fish, Wildlife, and Parks (MFWP), the Montana Department of Natural Resources and Conservation (DNRC), the Montana State Historic Preservation Office (MSHPO), the Crow Tribe of Indians, the Northern Cheyenne Tribe, and the Lower Brule Sioux Tribe while preparing the EIS. The final EIS was issued in January 2003, and is available on the Department's web site at http://www.deq.state.mt.us/CoalBedMethane/index.asp. This EA assesses the impacts specific to the proposed BCPL Visborg 25 Battery Facility.

8. The following table summarizes the potential physical and biological effects of the proposed project on the human environment. The "no-action" alternative was discussed previously.

		Major	Moderate	Minor	None	Unknown	Comments Included
A	Terrestrial and Aquatic Life and Habitats			X			Yes
B	Water Quality, Quantity, and Distribution			X			Yes
C	Geology and Soil Quality, Stability, and Moisture			X			Yes
D	Vegetation Cover, Quantity, and Quality			X			Yes
E	Aesthetics			X			Yes
F	Air Quality			X			Yes
G	Unique Endangered, Fragile, or Limited Environmental Resources			X			Yes
H	Demands on Environmental Resource of Water, Air, and Energy			X			Yes
I	Historical and Archaeological Sites			X			Yes
J	Cumulative and Secondary Impacts			X			Yes

SUMMARY OF COMMENTS ON POTENTIAL PHYSICAL AND BIOLOGICAL EFFECTS: The following comments have been prepared by the Department.

A. Terrestrial and Aquatic Life and Habitats

Minor impacts on terrestrial and aquatic life and habitats would be expected from the proposed project because deer, antelope, coyotes, geese, ducks, and other terrestrials would potentially use the area around the facility and because the proposed action is a source of increased air pollutants. The facility would emit air pollutants and corresponding deposition of pollutants would occur. However, as described in Section 8.F. of this EA, the Department determined, based on ambient air quality modeling, that any impacts from deposition would be minor. The proposed action will occur in a location previously disturbed and construction activity should be minor and temporary. Any impacts on terrestrial and aquatic life and habitats from facility construction would be minor due to the relatively small size of the project. Overall, any impacts to terrestrial and aquatic life and habitats from the project would be minor.

B. Water Quality, Quantity, and Distribution

Minor impacts would be expected on water quality, quantity, and distribution from the proposed project because the facility would be a source of air pollutants. The proposed project would result in a slight increase in air pollutants and corresponding deposition of pollutants would occur. However, as described in Section 8.F. of this EA, the Department determined that air quality impacts from deposition would be minor. Therefore, the chance of deposition of pollutants impacting water quality, quantity, and distribution would be minor. The facility is a central compressor station, not a production field facility; therefore, no discharges into surface water would occur from operating the facility. However, minor amounts of water may be required to control fugitive dust emissions from the access roads and the general facility property.

Minor impacts may be expected on water quality, quantity, and distribution from constructing the facility because there is surface water relatively close to the site. However, no discharges into surface water would occur, and no use of surface water would be expected for facility construction. Therefore, minor impacts to water quality, quantity, and distribution would be expected from facility construction. Overall, any impacts to water quality, quantity, and distribution from the project would be minor.

C. Geology and Soil Quality, Stability, and Moisture

Minor impacts would occur on the geology and soil quality, stability, and moisture from the proposed project because minor construction would be required for the removal and change out of generators. In addition, no discharges, other than air emissions, would occur from the facility. Any impacts to the geology and soil quality, stability, and moisture from facility construction would be minor due to the relatively small size of the project.

Deposition of pollutants would occur. However, as described in Section 8.F of this EA, the Department determined, based on ambient air quality modeling, that the impacts from the deposition of pollutants on the geology and soil in the areas surrounding the site would be minor. Overall, any impacts to the geology and soil quality, stability, and moisture from the project would be minor.

D. Vegetation Cover, Quantity, and Quality

Minor impacts would occur on vegetation cover, quantity, and quality because minor construction would be required to remove and change out generators.

In addition, no discharges, other than air emissions, would occur from the facility. Any impacts to the vegetation cover, quantity, and quality from facility construction would be minor due to the relatively small size of the project.

The facility would be a source of air pollutants, and corresponding deposition of pollutants would occur. However, as described in Section 8.F of this EA, the Department determined, based on ambient air quality modeling, that the chance of deposition of pollutants impacting the vegetation in the area surrounding the site would be minor. Overall, any impacts to vegetation cover, quantity, and quality from the project would be minor.

E. Aesthetics

No impacts would result from the proposed project because activity will occur at an existing facility. However, the proposed project would result in minor and temporary construction and would create additional noise in the area. Overall, any aesthetic impacts from the project would be minor.

F. Air Quality

The air quality of the area would realize minor impacts from the proposed project because the facility would emit the following air pollutants: PM_{10}, NO_x, CO, VOC, and SO_x. Additional deposition of these pollutants may occur from the proposed project. However, the Department determined that any air quality impacts from deposition would be minor based on ambient air quality modeling (described in Section VI of the Permit Analysis), dispersion characteristics of pollutants (stack height, stack temperature, etc.), the surrounding atmosphere (wind speed, wind direction, ambient temperature, etc.), and conditions placed in Permit #3302-02. These conditions would include, but would not be limited to BACT emission limits and opacity limitations. Therefore, any impacts to air quality from the proposed facility would be minor.

G. Unique Endangered, Fragile, or Limited Environmental Resources

In an effort to identify any unique endangered, fragile, or limited environmental resources in the area, the Department contacted the Montana Natural Heritage Program, Natural Resource Information System (NRIS). The NRIS search identified no species of special concern in the area of the proposed facility. In this case, the area was defined by the section, township, and range of the proposed location with an additional 1-mile buffer zone. Due to the minor amounts of construction that would be required and the relatively low levels of pollutants that would be emitted, the Department determined that it would be unlikely that the proposed project would impact any species of special concern and that any potential impacts would be minor.

H. Demands on Environmental Resource of Water, Air, and Energy

The proposed project would have minor impacts on the demands for the environmental resources of air and water because the facility would be a source of air pollutants. Deposition of pollutants would occur as a result of operating the facility. However, as explained in Section 8.F of this EA, the Department determined that the impacts would be minor. Therefore, any impacts on air and water resources from the pollutants (including deposition) would be minor.

The proposed project would be expected to have minor impacts on the demand for the environmental resource of energy because some line power would be required at the site for the proposed project. The impact on the demand for the environmental resource of energy would be minor because the facility would be relatively small by industrial standards. Overall, the impacts for the demands on the environmental resources of water, air, and energy would be minor.

I. Historical and Archaeological Sites

In an effort to identify any historical and archaeological sites located near the proposed project area, the Department contacted the Montana Historical Society, State Historic Preservation Office (SHPO). According to SHPO records, there are not any previously recorded historic or archaeological sites within the proposed area. However, SHPO stated that the absence of

cultural properties in the area does not mean that they do not exist, but may reflect a lack of previous cultural resource inventories in the area. SHPO records indicate only one previous cultural resource inventory has been conducted for the area. The Department determined that the chance of the project impacting any historical and archaeological sites in the area would be minor due to the relatively small size of the project and because the new compressor engines would be installed at an existing site. The existing site experienced prior construction activities and currently has two compressor engines in operation.

J. Cumulative and Secondary Impacts

The cumulative and secondary impacts from this project on the physical and biological aspects of the human environment in the immediate area would be minor due to the relatively small size of the project. Only small amounts of construction and land disturbance would be required to complete the project. Noise impacts would be minor due to temporary nature and size of construction that would be required to remove and change out generators. There is potential for other operations to locate near the site that the facility would use. However, any operations would have to apply for and receive the appropriate permits from the Department prior to operation. These permits would address the environmental impacts associated with the operations at the proposed site. Further, as stated in Section VI of the Permit Analysis, a statewide EIS was completed to analyze potential impacts from coal bed methane exploration, production, development, and reclamation activities from a broad planning perspective. Overall, the Department believes that this facility could be expected to operate in compliance with all applicable rules and regulations as would be outlined in Permit #3302-02 and any impacts to the physical and biological environment from the project would be minor.

9. The following table summarizes the potential economic and social effects of the proposed project on the human environment. The "no-action" alternative was discussed previously.

		Major	Moderate	Minor	None	Unknown	Comments Included
A	Social Structures and Mores			X			Yes
B	Cultural Uniqueness and Diversity			X			Yes
C	Local and State Tax Base and Tax Revenue				X		Yes
D	Agricultural or Industrial Production			X			Yes
E	Human Health			X			Yes
F	Access to and Quality of Recreational and Wilderness Activities			X			Yes
G	Quantity and Distribution of Employment			X			Yes
H	Distribution of Population			X			Yes
I	Demands for Government Services			X			Yes
J	Industrial and Commercial Activity			X			Yes
K	Locally Adopted Environmental Plans and Goals				X		Yes
L	Cumulative and Secondary Impacts			X			Yes

SUMMARY OF COMMENTS ON POTENTIAL ECONOMIC AND SOCIAL EFFECTS: The following comments have been prepared by the Department:

A. Social Structures and Mores
B. Cultural Uniqueness and Diversity

The proposed project would cause minor, if any, disruptions to native or traditional lifestyles or communities (social structures and mores or cultural uniqueness and diversity) in the area because the proposed project would take place in a relatively remote location. The facility would be relatively small by industrial standards. Additional activity (vehicle traffic, construction equipment, etc.) may be noticeable during construction associated with the proposed project; however, the activity would be temporary and minor. Overall, any impacts to the social structures and mores in the area would be minor.

C. Local and State Tax Base and Tax Revenue

The proposed project would not impact the local and state tax base and tax revenue because no additional employees would be hired as a result of operating the facility. In addition, only minor amounts of construction would be needed to complete the project and existing employees would be used to complete the project.

D. Agricultural or Industrial Production

The proposed project will take place at an existing facility and would result in only a minor disturbance to a relatively small amount of rural agricultural grazing land. The proposed project would have minor impacts to industrial production because the proposed project is an existing industrial source in the area and any additional emissions from the project would be minor. While emissions of air pollutants and corresponding deposition of pollutants would occur (see Section 8.F of this EA), the Department determined, based on ambient air quality modeling, that the impacts due to the deposition of pollutants on agricultural or industrial production in the area surrounding the site would be minor. Overall, any impacts to agricultural or industrial production would be minor.

E. Human Health

The proposed project would result in only minor, if any, impacts to human health. As explained in Section 8.F of this EA, deposition of pollutants would occur. However, the Department determined that the proposed project would comply with all applicable air quality rules, regulations, and standards. These rules, regulations, and standards are designed to be protective of human health.

F. Access to and Quality of Recreational and Wilderness Activities

The proposed project would have minor, if any, impacts on access to recreational and wilderness activities because of the relatively remote location and the relatively small size of the facility. The proposed project would have minor impacts on the quality of recreational and wilderness activities in the area because the facility, while relatively small by industrial standards, would be visible and produce noise.

G. Quantity and Distribution of Employment

The proposed project would have minor, if any, impacts on the quantity and distribution of employment because only one part-time employee would be hired as a result of the proposed project. The BCPL employee would be responsible for the day-to-day operation of the facility. In addition, temporary construction-related positions may result from this project but any impacts to the quantity and distribution of employment from construction-related employment would be minor due to the relatively small size of the facility and the corresponding relatively short time period that would be associated with constructing the facility.

H. Distribution of Population

The proposed project would have minor, if any, impacts on the distribution of population in the area because the facility would be located in a relatively remote location and the proposed project would create only one part-time job. Therefore, no people would be moving to the area for employment opportunities.

I. Demands for Government Services

There would be minor impacts on the demands for government services because additional time would be required by government agencies to issue Permit #3302-02 and to assure compliance with applicable rules, standards, and Permit #3302-02. In addition, there would be minor impacts on the demands for government services to regulate the increase in vehicle traffic that would be associated with constructing and operating the facility. The increase in vehicle traffic would be primarily during facility construction because compressor stations typically do not require day-to-day employees. Vehicle traffic during construction would be minor due to the relatively short time period that would be required to construct the facility. Overall, any demands for government services to regulate the facility or activities associated with the facility would be minor due to the relatively small size of the facility.

J. Industrial and Commercial Activity

The proposed project may represent a minor increase in the industrial activity in the area during construction of the project, but no additional industrial or commercial activity would result solely from the operation of the facility. Any impacts to industrial and commercial activities in the area would be minor.

K. Locally Adopted Environmental Plans and Goals

The Department is not aware of any locally adopted environmental plans and goals that would be affected by issuing Permit # 3302-02. The state standards would protect the proposed site and the environment surrounding the site.

L. Cumulative and Secondary Impacts

Overall, cumulative and secondary impacts from this project would result in minor impacts to the economic and social aspects of the human environment in the immediate area. Due to the relatively small size of the project changes resulting from the proposed project would be minor.

Additional facilities would likely locate in the area to withdraw the methane from the coal beds and supply BCPL with gas to be compressed for transmission through a natural gas pipeline. However, any future facility would be required to apply for and receive the appropriate permits from the appropriate

regulating authority. This permitting process would address any additional impacts to the economic and social aspects of the human environment. Further, as stated in Section VI of the permit analysis and Section 8 of the EA, a statewide EIS was completed to analyze potential impacts from coal bed methane exploration, production, development, and reclamation activities from a broad planning perspective.

Recommendation: No EIS is required.

The current permitting action is for the operation of up to five natural gas compressor engines with a total maximum rated design capacity of 2,460 hp. Permit #3302-02 includes conditions and limitations to ensure the facility will operate in compliance with all applicable rules and regulations. In addition, there are no significant impacts associated with this proposal.

Other groups or agencies contacted or which may have overlapping jurisdiction: Montana Historical Society – State Historic Preservation Office, Natural Resource Information System – Montana Natural Heritage Program

Individuals or groups contributing to this EA: Department of Environmental Quality – Air Resources Management Bureau, Montana Historical Society – State Historic Preservation Office, Natural Resource Information System – Montana Natural Heritage Program

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